Apple II

Five Ways

Five Ways Software

Climate

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H·C·E

Heinemann Computers in Education

Starting up

All machines

1 Switch on TV monitor(s).
2 Switch on Apple (rear left corner).
3 The disk light should now come on.

DOS 3.2 machines

1 Insert program disk in the disk drive with light on (see diagram below).
2 Close disk drive door.
3 Wait for a few seconds . . . the program will be entered automatically.

DOS 3.3 machines

1 Insert DOS 3.3 BASICS disk in the disk drive with light on (see diagram below).
2 Close the disk drive door.
3 Wait for message to appear on screen.
4 Replace DOS 3.3 BASICS disk by program disk.
5 Close the disk drive door and press RETURN.
6 Wait for a few seconds . . . the program will be entered automatically.

Note If your machine has a **language card**, follow the steps for DOS 3.3 machines.

Technical details

Minimum configuration

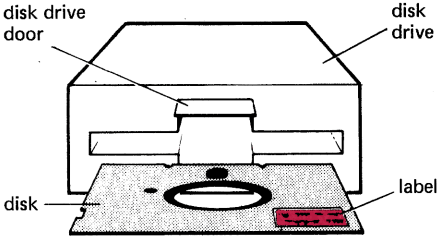
48K RAM
Single disk drive
Applesoft must be in ROM or machine must possess a language card.

About the program disk

Disk contains DOS 3.2.1.
Disk is single-sided and copy-protected.
Do not save other programs on this disk, or write-protect it.

How to insert a disk

1 Open the disk drive door.
2 Remove any disk already in the drive.
3 Insert new disk (see diagram).
4 Close disk drive door.



In case you need help

Telephone 021 - 475 1874

Or write to HCE Query Service,
Ilmington School,
Ilmington Road,
Birmingham B29 5LL.

For the Apple II

Climate

Teaching notes

An M.E.P. subsidised issue

Published by
Heinemann Computers in Education Ltd

Heinemann Computers in Education Ltd
22 Bedford Square, London WC1B 3HH

LONDON EDINBURGH MELBOURNE AUCKLAND
HONG KONG SINGAPORE KUALA LUMPUR NEW DELHI
IBADAN NAIROBI JOHANNESBURG
EXETER (NH) KINGSTON PORT OF SPAIN

ISBN 0 431 01006 4

First published 1982

Filmset by Eta Services (Typesetters) Ltd., Beccles, Suffolk
and printed in Great Britain by Woodwards of Bath

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Acknowledgements

The project team is indebted to a great number of people for testing the programs and making many suggestions and criticisms that have proved invaluable. In particular the team would like to thank Bob Trigger (Information Officer for MUSE); the Headmaster, staff and pupils of King Edward VI Five Ways School, Birmingham; Bob Coates, Manager (Computing) of MEP; the Headmaster, staff and pupils of the Netherhall School, Cambridge and specifically Alan Greenwell and Don Kite.

The designer would personally like to thank Mr E. L. Osmend for the early design work on this program.

Finally, the team would like to express its gratitude to Microsense/APPLE UK Ltd for their help and support, without which the production of this software would have been impossible.

Front cover courtesy of Barnaby's Picture Library.

1 Introduction

Five Ways Software is a series of resource materials for teaching and learning with the aid of microcomputers. The programs, designed by teachers, and the accompanying teaching notes have been written so that those with little or no knowledge of computers can use the disks with confidence and ease.

There are various ways in which a computer can be used to aid the teaching and learning process. The uses prevalent in schools can conveniently be divided into two main types:

(a) the teacher demonstrates an idea or topic using the computer;
(b) the pupils themselves use the computer.

The equipment requirements for each of these two approaches are rather different, as are the organizational problems involved. A discussion of ways in which the problems may be overcome, even when equipment is limited, may be found in *Computer Software for Schools* (London: Pitman, 1980).

Some teachers will be using computer-aided learning materials for the first time. Section 2.3 (page 6), 'Some suggestions for possible uses', has been included especially for their benefit. The suggestions given are intended to help first-time or inexperienced users increase their appreciation of the versatility of computer-aided learning materials. Once familiarity has been gained, the teacher will doubtless develop his or her own ways of using the materials.

The provision of equipment and the degree of experience in using computer-aided learning materials are only two of the factors that differ from school to school. Class size, range of ability, and teaching methods also vary considerably. As far as possible, these software packs have been designed to take account of these variations and to lend themselves to flexible use. In particular, they can be used to support a variety of teaching styles and may therefore be incorporated into lessons and courses as and when each teacher desires.

Throughout the development of the *Five Ways Software* materials the Project Team has been grateful for the many comments, suggestions, and criticisms that individual teachers have made when viewing early drafts. We hope that this process will continue. To this end we would value any suggestions for improvements or for other

topic areas we might investigate. We can be reached through the Heinemann Computers in Education Query Service at the address given on the inside front cover of this booklet.

We have enjoyed developing these materials. We hope that you and your pupils will gain enjoyment and benefit from using them.

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Notes for teachers 2

2.1 Program description

Recent trends in geography teaching have placed emphasis on the 'human' rather than on the 'physical' elements of lower and middle school courses. One effect of this has been that pupils taking courses leading to first public examinations always seem to find the study of world climatic regions difficult, especially when encountering the disciplines of causality and identification for the first time. This program is designed to provide them with practice in these important disciplines.

The program presents the pupil with a set of monthly temperature and rainfall statistics, either graphically or in tabular form, depending upon the choice of the teacher. The pupil then analyses the data in stages by answering a standard set of multiple-choice

questions. In this way the pupil is guided to identify the hemisphere, thermal belt, and latitudinal belt of the station and to comment on the amount and distribution pattern of its rainfall. If at any stage the pupil makes an inaccurate identification a 'hint' is given. This is in the form of a graphical or tabular display which relates the question to temperature and rainfall. Thus the pupil is encouraged to use the data for the station when answering the question.

As each stage of the analysis is concluded a summary of the correct answers is retained on the screen, building up a descriptive profile of the climate station under consideration. The pupil can then use this profile to identify the climate type.

2.2 Prerequisites

Since all the data relate to temperature and rainfall, some explanation of these two and how they vary according to climatic region is necessary before the pupils run the program. The amount of explanation given depends entirely upon the judgement of the teacher.

2.3 Some suggestions for possible uses

When introducing the subject of climate to the pupils, this program can be used to illustrate the unique characteristics of any climate. Once these characteristics have been discussed, variations occurring within a climatic region can be demonstrated. When the computer is used for classroom demonstration it is important to ensure that the pupils can read the screen(s) clearly. Teachers who are inexperienced in using computers in the classroom may well be surprised by how close many pupils need to be to a large television screen before they can read it clearly. The use of two screens may help to solve this problem.

The program can also be used by pupils on an individual basis. When revising, pupils may well find that using the program on their own to attempt an identification of any climate is a very helpful exercise; the program has proved invaluable in the preparation of students for their first public examination.

Table 2.1 The general characteristics of the fifty-six climates and their variants.

Thermal zones (with minimum) temperature)	*Climates*	*Location*[1]	*Mean annual rainfall*[2]	*Rainfall distribution code*	*Number of stations*	*Climate number*
Hot climates	Equatorial	E	Heavy	Rain all year	3	28–30
(18 °C)	Monsoon	N	Heavy	Summer rain	3	31–33
	Monsoon	S	Heavy	Summer rain	1	34
	Monsoon	N	Moderate	Summer rain	1	35
	Savanna	N	Heavy	Summer rain	3	36–38
	Savanna	S	Light	Summer rain	1	39
	Savanna	N	Moderate	Summer rain	1	40
	Hot desert	N	Very light	Drought	3	1–3
	Hot desert	S	Very light	Drought	1	4
	Modified equatorial	E	Heavy	Rain all year	3	5–7
	Tropical marine	N	Heavy	Rain all year	3	8–10
	Tropical marine	S	Heavy	Rain all year, summer maximum	1	11
Warm temperate zones	Mediterranean	S	Light	Winter rain	3	12–14
(6 °C)	Mediterranean	N	Moderate	Winter rain	1	15
	Gulf coast/China	N	Heavy	Rain all year, summer maximum	3	41–43
	Gulf coast/China	N	Heavy	Summer rain	1	44
	Gulf coast/China	S	Heavy	Rain all year	1	45
Cool temperate zones	British Isles	S	Heavy	Rain all year	3	16–18
(−20 °C)	British Isles	N	Moderate	Rain all year, winter maximum	1	19
	British Isles	N	Moderate	Rain all year, summer maximum	1	20
	Cool temperate interior	N	Light	Summer rain	3	25–27
	Laurentian	N	Moderate	Summer rain	3	21–23
	Laurentian	N	Heavy	Rain all year	1	24
Cold climates	Cold temperate (Taiga)	N	Light	Rain all year, summer maximum	3	46–48
(−43 °C)	Cold temperate (Taiga)	N	Very light	Drought	1	49
	Tundra	N	Light	Rain all year, summer maximum	3	50–52
	Tundra	N	Very light	Drought	1	53
	Polar	N	Very light	Drought	3	54–56

[1] E = on Equator; N = Northern Hemisphere; S = Southern Hemisphere.

[2] Annual rainfall limits—heavy: >1000 mm; moderate: 501–1000 mm; light: 250–500 mm; very light: <250 mm.

2.4 The data

This program contains climatic data for fifty-six stations comprising:

Jan–Dec mean monthly rainfall in mm
Mean annual rainfall in mm
Jan–Dec monthly temperatures in °C
Altitude of the station in metres

All the stations are theoretical and, although not chosen from known world stations, are accurate representations of each climatic zone.

For each of the fifty-six stations there are two sets of data: the '30 year mean' and 'for 1 year'. The latter is based on the former, but has an added, small, statistically based variation. This should prevent pupils memorizing sets of data and encourage a genuinely analytical approach.

Initially the program displays data for a station selected at random. If the teacher wishes to concentrate on a particular climate, this climate can be chosen by number as described in Section 3.2. Once that climate has been identified the program will again display data for a station selected at random, unless the user specifies otherwise.

Table 2.1 summarizes the general characteristics of each climate station.

3 Running the program

3.1 Introduction

Once the title screen has appeared for a short while the parameter selection screen will be displayed, as shown in Fig. 3.1. Here the parameters which determine the type of question to be asked are highlighted. Directions for varying these parameters are given in Section 3.2.

When you press the space bar the data (annual rainfall and temperature by month) for a randomly chosen station will appear. This

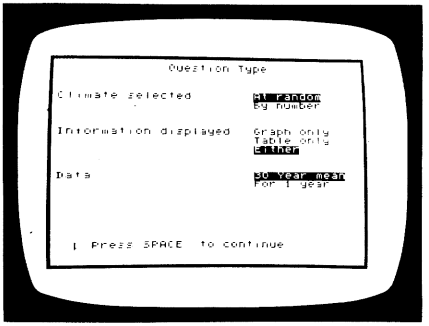
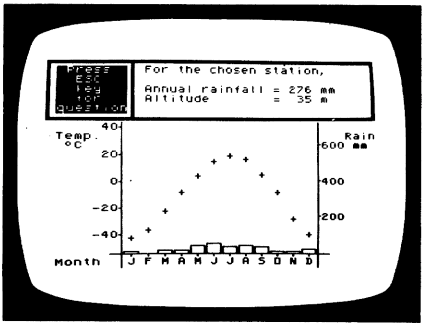


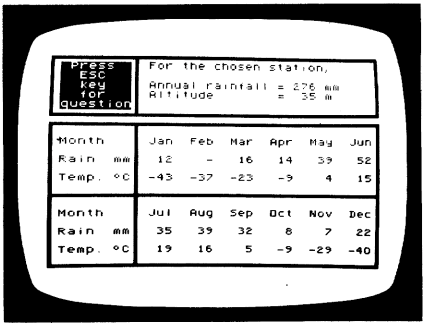
Fig. 3.1

may be presented graphically, as in Fig. 3.2(a), or in tabular form, as in Fig. 3.2(b), depending upon the choices made on the parameter selection screen.

The first question will be displayed when you press ESC.



a



b

Fig. 3.2

3.2 Changing the parameters

The parameters that are displayed on the parameter selection screen (Fig. 3.1) can be varied if desired. To change them, you must first hold down CTRL and press E. No mention of this facility is made on the screen itself because it is anticipated that teachers will want to exercise control over this selection for each run.

After you have pressed CTRL E, an arrow will appear on the right-hand side of the screen, as shown in Fig. 3.3.

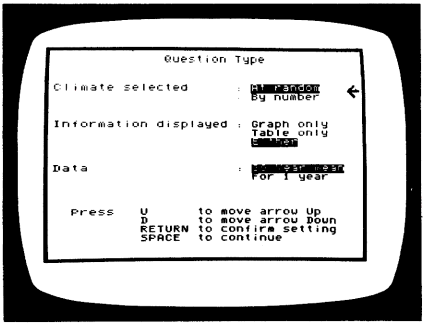


Fig. 3.3

The parameters currently selected are highlighted. You can select a different parameter by moving the arrow alongside your choice.

Press U to move the arrow **up**.
Press D to move the arrow **down**.

Confirm your selection by pressing RETURN. For example, if you wanted to concentrate on graphical displays of information, you would move the arrow alongside Graph only by pressing D twice, and then press RETURN. Graph only will now be highlighted, instead of Either. This is illustrated in Fig. 3.4.

Do not press the space bar until you have made all of the parameter changes you would like. No further changes to the parameters can be made after the space bar has been pressed.

To select a particular climate type, move the arrow alongside By number and press RETURN. After you have pressed the space bar, you will be required to enter the desired climate number (listed in Table 2.1).

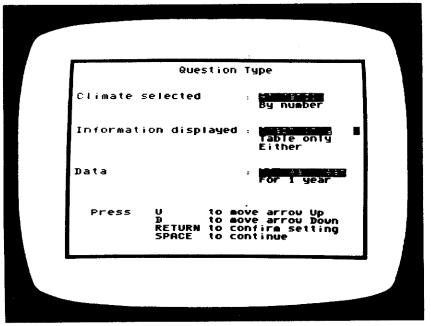


Fig. 3.4

3.3 User responses

You are expected to answer five questions about the given station, which will progressively help you to identify its climate. The questions are:

- Which HEMISPHERE?
- Which THERMAL BELT?
- Which LATITUDINAL BELT of the globe?
- Comment on the RAINFALL
- Comment on DISTRIBUTION of rainfall

The correct answers are summarized at the top of the screen. This is shown in Fig. 3.5 where the fourth question (Comment on the RAINFALL) has been reached.

You can view the rainfall and temperature data (Fig. 3.2) at any time during the run by pressing ESC While answering a question, you can change the presentation from a graphical to a tabular display, or vice versa, by holding down CTRL and pressing T.

To see the first question, press ESC. To answer the question, input the number corresponding to the option of your choice. Suppose you were running the program and had reached the stage shown in Fig. 3.6. Here there are only three alternatives to choose from. Select one by pressing 1, 2, or 3 and then press RETURN to confirm your choice. If you make a mistake, press ← before pressing RETURN to erase the character you typed.

If your answer is correct it will be summarized in the box at the top of the screen (Fig. 3.5), and you can proceed to the next question.

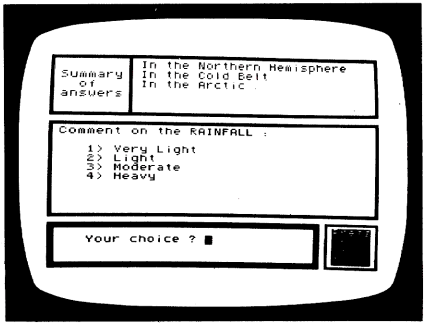


Fig. 3.5

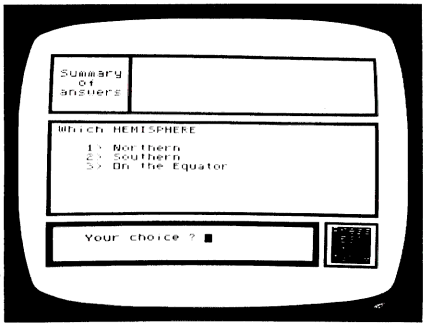


Fig. 3.6

If your answer is incorrect you will be given a 'hint' to help you choose correctly. In the example above you would be presented with three graphs defining the characteristics of types of hemisphere in terms of temperature against time, as shown in Fig. 3.7.

It would be advisable to press ESC at this stage to view the data for your station, and thereby determine which hemisphere best corresponds to the data. (The presentation of the data can be changed as described on page 11.) Then press ESC to return to your question and make an informed choice. The crossed boxes on the left of the alternatives mark those you have already selected (see Fig. 3.8).

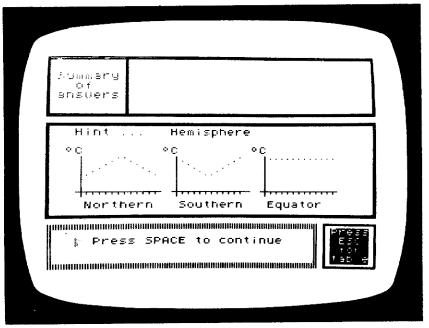


Fig. 3.7

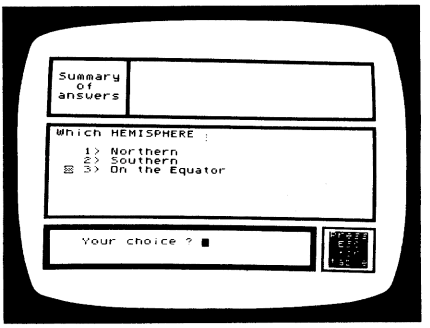


Fig. 3.8

When you have determined the hemisphere, thermal belt, and latitudinal belt, and have commented on the annual rainfall and its distribution, you are expected to identify the climate of the station. You are only given one chance and if your identification is incorrect the correct climate will be displayed.

You can now press

A to run the program for **another station**, or

F to **finish**.

3.4 Leaving the program

You leave the program by pressing F (to finish) after you have identified the climate of a station. Instructions will appear on the screen which tell you when to remove the disk and switch off your computer.

Summary of special keys

The following keys have special functions:

CTRL + E	allows you to change the question type.
U	moves the arrow **up** the list of parameters.
D	moves the arrow **down** the list of parameters.
A	runs the program for **another station**.
F	**finishes** the program after a climate station has been identified.
←	cancels the last typed character.
RETURN	confirms your input.
space bar	moves you on to the next question.
ESC	moves you from a question to the data display or vice versa.
CTRL + T	changes a graphical display of rainfall and temperature data to a tabular display, or vice versa.

Apple II

Climate recognition is an essential part of any middle-school geography course — it is also one that pupils often find tedious to practise. This program reinforces the topic in an unusually attractive way which should stimulate pupils of a wide range of abilities.

Data for the mean monthly temperature and rainfall for a weather station with a randomly chosen climate type are presented either graphically or in tabular form. The user is guided by multiple choice questions to analyse the data in a step-by-step process. Graphical hints are given when an incorrect choice is made. The pupil can then draw a reasoned conclusion about the weather station's climate.

The teacher can also use the program to illustrate the unique characteristics of any of fifty-six climates. Since the data are randomly generated within set limits, it is impossible for a pupil to memorize the figures, and a logical analysis is therefore ensured.

Five Ways Software is a series of resource materials for teaching and learning with the aid of microcomputers. The programs have been designed by teachers and written so that those with little or no knowledge of computers can use the disks with confidence and ease.

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